

REMARKS

In the previous Office Action, the drawings are objected to because the contends that the features recited in lines 6-13 and 35-39 are not illustrated in the drawing figures. In response, lines 35-39 of claim 15 have been canceled. However, it is submitted that the features recited in lines 6-13 are adequately illustrated in the drawings as will be demonstrated below. Lines 6-13 of claim 15 recite that:

“each of said component supply tables being supported on casters so as to be movable between support frames toward and away from the respective side of the board mounting position and replaceable by being removed from the respective side of the board mounting position so that a new component supply table for accommodating a plurality of components can be positioned at the side of the board mounting position vacated by one of the component supply tables”.

In other words, the above quoted language of claim 15 requires that each of the component supply tables is supported on casters and is capable of being moved toward and away from the mounting position. The drawings show a plurality of component supply tables 28A, 28B supported on casters 40 which is the structure recited in lines 6-13. What further structure is required to be shown in the drawings?

In view of the amendment to claim 15 and the above discussion, it is submitted that the features recited in lines 6-13 of claim 15 are shown in the drawings, and thus the Examiner is requested to withdraw the objection to the drawings.

* * * * *

Next, the Examiner contends that the specification, as originally filed, does not support the language of claim 15, lines 6-13. Please note that lines 35-39 of claim 15 and lines 36-38 of claim 18 have been deleted.

It is submitted that the specification provides adequate support for the remaining claim language, in particular lines 6-13 of claim 15 as will be demonstrated below.

Page 15, lines 18-21 of the specification, as originally filed, states that:

"Between both the support frames 29 are inserted the component supply tables 28A from both depthwise sides as moved by casters 40, and thereafter they are fixedly installed in specified positions."

Although the translated language of the original specification is somewhat awkward, the quoted language clearly describes that each supply table is movable into a position between the support frames. The movement of each supply table is possible because the supply tables are each mounted on casters 40, which permits each supply table to be moved into a specified position between support frames 29, and then fixedly installed in the specified position.

Furthermore, page 23, lines 8-14 of the specification, as originally filed, describes that:

"When the types of circuit boards 37 increase, it can be coped with only by replacing a part of the component supply tables 28A through 28D installed at the component mounting apparatuses 27A through 27D with component supply tables 28A through 28D mounted with required components 34. It is to be noted that the component mounting apparatuses 27A through 27D can be also used singly."

The above language specifies that one or more of the supply tables 28A-28D can be replaced with tables having the required components. Note that page 24, line 25 to page 25, line 4 of the specification, as originally filed, also describes that:

"With this arrangement, when the types of boards increase, it can be coped with only by replacing a part of the component supply tables of the component mounting apparatuses with component supply tables mounted with the required components."

In view of the above, it is submitted that the claim language is clearly supported by the specification as originally filed, and that each of the pending claims (including new claims 23-25) clearly complies with the provisions of 35 U.S.C. 112, second paragraph. However, in the event that the Examiner continues to be confused and/or uncertain of what is required by the claim language, then the Examiner is respectfully requested to contact Applicants' undersigned representative so that a telephone or personal interview can be arranged in order to advance the prosecution of the present application.

Respectfully submitted,

Kanji HATA et al.

By: 

Michael S. Huppert
Registration No. 40,268
Attorney for Applicants

MSH/kjf
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
October 18, 2002

15. (Four Times Amended) A component mounting apparatus comprising:

a pair of component supply tables for accommodating a first plurality of components, said component supply tables being arranged on opposite sides of a board mounting position, respectively,

each of said component supply tables being supported on casters so as to be movable between support frames toward and away from the respective side of the board mounting position and replaceable by being removed from the respective side of the board mounting position so that a new component supply table for accommodating a second plurality of components can be positioned at the side of the board mounting position vacated by one of the component supply tables; and

a first mounting head section for successively picking up components at one of the component supply tables, thereafter moving to a board positioned at the board mounting position, and thereafter successively mounting the picked-up components onto the board while moving in first and second directions which are perpendicular to each other,

wherein the first direction is perpendicular to a board transfer direction in which the board is transferred, and the second direction is located along the board transfer direction,

a second mounting head section for successively picking up components at the other of the component supply tables, thereafter moving to the board positioned at the board mounting position, and thereafter successively mounting the picked-up components onto the board while moving in third and fourth directions which are perpendicular to each other,

wherein the third direction is parallel to the first direction, and the fourth direction is parallel to the second direction but is not necessarily the same direction as the second direction,

wherein each of the first and second mounting head sections is independently movable between one of the component supply tables and the board [, and while one of the first and second mounting head sections is stopped for replacement of one of the component supply tables with a new component supply table, the other of the

first and second mounting head sections is movable between the other of the component supply tables and the board].

16. (Amended) The component mounting apparatus according to claim 15, wherein each of the component supply tables is selected from one of:

a component supply table provided with component supply means comprised [comprises] of parts cassettes provided with reels;

a component supply table provided [mounted] with [a] stick-shaped component supply means at which components stored in a pipe member are successively fed to a take-out position;

a component supply table on which bulk components are placed; and

a tray-shaped component supply table.

17. The component mounting apparatus according to claim 16, wherein component take-out positions of the component supply tables are positioned along a straight line extending along a board transfer path along which the board is transferred.

18. (Thrice Amended) A component mounting apparatus comprising:

a base structure;

a pair of inverted U-shaped support frames positioned on said base structure in a parallel relationship and on opposite sides of a board mounting position, wherein a board transfer path extends through openings in said U-shaped support frames;

a first component supply table supported on a plurality of casters and removably secured between said support frames on a first side of the board transfer path,

a second component supply table supported on a plurality of casters and removably secured between said support frames on a second side of the board transfer path, wherein each of said first and second component supply tables accommodates a plurality of components,

wherein each of said component supply tables can be moved in a perpendicular direction toward and away from the board transfer path;

Version with Markings to
Show Changes Made

a first mounting head section for successively picking up a plurality of components at the first component supply table, thereafter moving to a board positioned at the board mounting position, and thereafter successively mounting the plurality of picked-up components onto the board while moving in first and second perpendicular directions, wherein the first direction is perpendicular to the board transfer direction,

a second mounting head section for successively picking up a plurality of components at the second component supply table, thereafter moving to the board positioned at the board mounting position, and thereafter successively mounting the plurality of picked-up components onto the board while moving in third and fourth directions which are perpendicular to each other, wherein the third direction is parallel to the first direction,

wherein the first and second mounting head sections are independently movable between the board and the first and second component supply tables, respectively [,

wherein the second mounting head section is movable between the second component supply table and the board while the first mounting head section is stopped for the purpose of replacing the first component supply table with a new component supply table].

19. The component mounting apparatus according to claim 15, wherein each of the component supply tables is provided with component supply means comprised of parts cassettes provided with reels, and when one of the component supply tables does not have components required for a mounting operation, it can be replaced with a new component supply table provided with the required components.

20. The component mounting apparatus according to claim 15, wherein, when the components are mounted on a plurality of types of boards, one of the component supply tables, having components required for one of the types of boards, is used for the one type of board while the other of the component supply tables is provided with components required for one of the other types of boards.

21. The component mounting apparatus according to claim 18, wherein the first component supply table is provided with a plurality of cassettes, and if components required for a mounting operation are not contained in the cassettes, the first component supply table can be replaced with a new component supply table having cassettes that are provided with the required components.

22. The component mounting apparatus according to claim 18, wherein the first component supply table is provided with components that are to be mounted on a first type of board, and the second component supply table is provided with components that are to be mounted on a second type of board so that concurrent mounting operations can be conducted on the first and second types of boards.